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INTERNATIONAL RECTIFIER IOR

150HF(R)/200HF(R)... SERIES

150/200 Amp Average

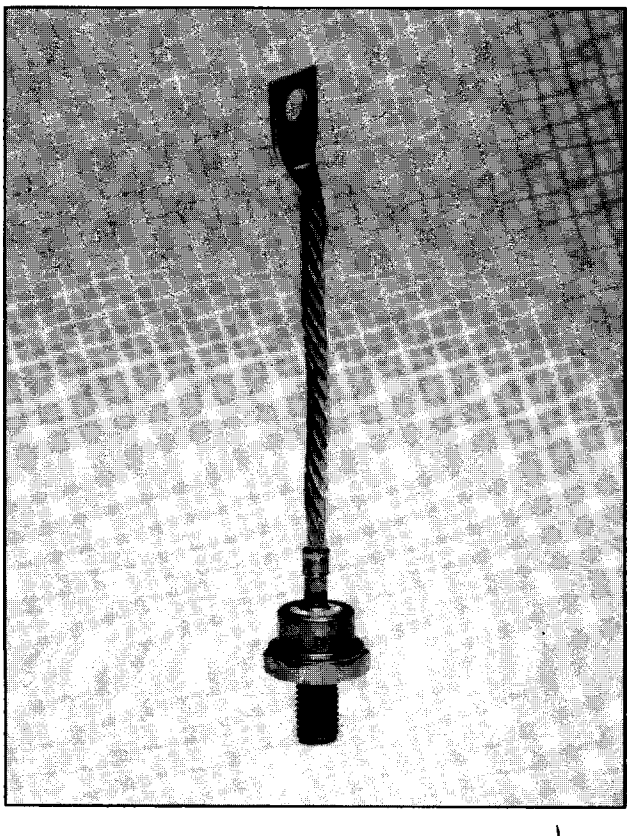
Medium Power Silicon Rectifier Diodes

Features

- Wide current range
- High surge current capabilities
- Types up to 1600V V_{RRM}
- Stud cathode and stud anode version
- Standard JEDEC types
- Diffused junction

Description

This range of medium power general purpose rectifier diodes is designed for battery chargers, converters, power supplies, machine tool controls.



Major ratings and characteristics

Parameter		150HF...	200HF...	Units
$I_{F(AV)}$		150	200	A
@ T_C		125	125	°C
I_{FSM}	@50Hz	2900	3700	A
	@60Hz	3040	3870	A
I^2t	@50Hz	42050	68450	A^2s
	@60Hz	38400	62500	A^2s
V_{RRM}		200 to 1600		V
T_J		-40 to 180		°C

8004-5709 Editor_____

ELECTRICAL SPECIFICATIONS

Voltage ratings

Type number	Voltage code	V_{RRM}, maximum repetitive peak reverse voltage $T_J = T_J$ Max.	V_{RSM}, maximum non-repetitive peak reverse voltage $T_J = T_J$ Max.	I_{RRM} Max @ rated V_{RRM} $T_J = T_J$ Max.
		(V)	(V)	(mA)
150HF(R)20/200HF(R)20	20	200	300	15
150HF(R)40/200HF(R)40	40	400	500	15
150HF(R)60/200HF(R)60	60	600	700	15
150HF(R)80/200HF(R)80	80	800	900	15
150HF(R)100/200HF(R)100	100	1000	1100	15
150HF(R)120/200HF(R)120	120	1200	1300	15
150HF(R)140/200HF(R)140	140	1400	1500	15
150HF(R)160/200HF(R)160	160	1600	1700	15

Forward Conduction

Parameters		150HF	200HF	Units	Conditions	
$I_{F(AV)}$ @ T_C	Maximum average forward current	150	200	A	180° Sine Conduction angle	
		125	125	°C		
$I_{F(RMS)}$	Maximum RMS current	235	314	A		
I_{FSM}	Maximum peak, one-cycle non-repetitive forward current Initial $T_J = T_J$ max.	2900	3700	A	t=10ms	100% V_{RRM} reapplied
		3040	3870	A	t=8.3ms	
		3450	4400	A	t=10ms	No voltage reapplied
		3610	4610	A	t=8.3ms	
I^2t	Maximum I^2t for fusing Initial $T_J = T_J$ max.	42050	68450	A^2s	t=10ms	100% V_{RRM} reapplied
		38400	62490	A^2s	t=8.3ms	
		59470	96800	A^2s	t=10ms	No voltage reapplied
		54290	88370	A^2s	t=8.3ms	
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	594.7	968	$kA^2\sqrt{s}$	I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 <= t_x <= 10ms$	
$V_{F(TO)}$	High-level of threshold voltage	1.14	1.04	V	T_J=180°C, $(\pi \times I_{(AV)} < I < 20 \times \pi \times I_{(AV)})$	
$V_{F(TO)2}$	Low-level of threshold voltage	0.95	0.85	V	T_J=180°C, $(16.7\% \times \pi \times I_{(AV)} < I < \pi \times I_{(AV)})$	
r_{t1}	High-level of forward slope resistance	0.78	0.59	mΩ	T_J=180°C, $(\pi \times I_{(AV)} < I < 20 \times \pi \times I_{(AV)})$	
r_{t2}	Low-level of forward slope resistance	1.13	0.85	mΩ	T_J=180°C, $(16.7\% \times \pi \times I_{(AV)} < I < \pi \times I_{(AV)})$	
V_{FM}	Maximum forward voltage drop	-	1.45	V	T_J=25°C, I_{FM}=628A_{pk}	
		1.53	-	V	T_J=25°C, I_{FM}=471A_{pk}	

Thermal and Mechanical Specifications

Parameters		150HF	200HF	Units	Conditions
T_J	Junction temperature range	-40 to 180		°C	
T_{stg}	Storage temperature range	-55 to 180		°C	
R_{thJC}	Max. thermal resistance junction to case	0.22	0.17	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink	0.08	0.08	K/W	Mounting surface, smooth, flat and greased
wt	Approximate weight	100		g	
T	Mounting Torque ± 10%	10		Nm	
Max. constant accel.		6000 g		m/s^2	Stud outwards
	Case style	DO-205AC (DO-30) / DO-205AA (DO-8)			

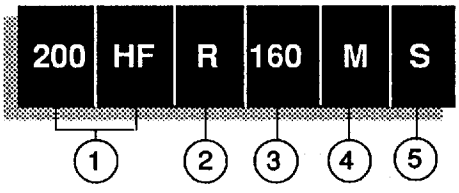
ΔR_{th} Conduction (per junction)

(The following table shows the increment of thermal resistance R_{thJ-C} when devices operate at different conduction angles than DC.)

Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	150HF...	200HF...	150HF...	200HF...		
180°	0.045	0.045	0.037	0.037	K/W	
120°	0.056	0.056	0.061	0.061	K/W	
90°	0.073	0.073	0.079	0.079	K/W	
60°	0.102	0.102	0.105	0.105	K/W	
30°	0.154	0.154	0.156	0.156	K/W	

ORDERING INFORMATION TABLE

Device Code



1 - Basic Part Number

2 - Missing = Cathode-to-case
R = Anode-to-case

3 - Voltage code (See Voltage ratings Table)

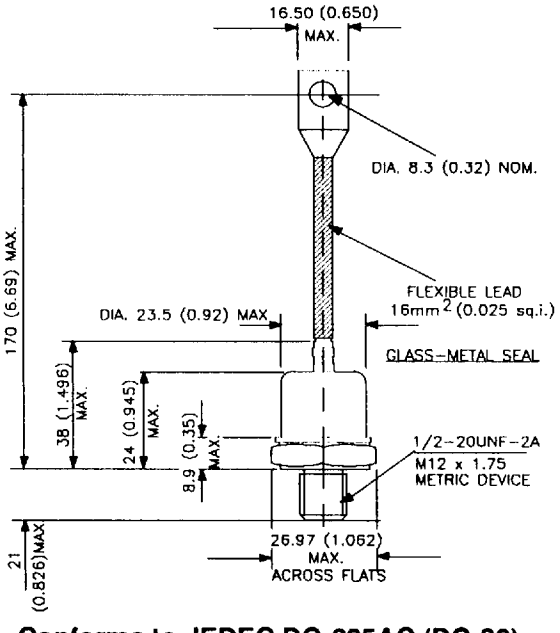
4 - Outline (See Table)

5 - Leads and terminal designator:
S = Isolated lead
B = Flag terminal
None = Non isolated lead

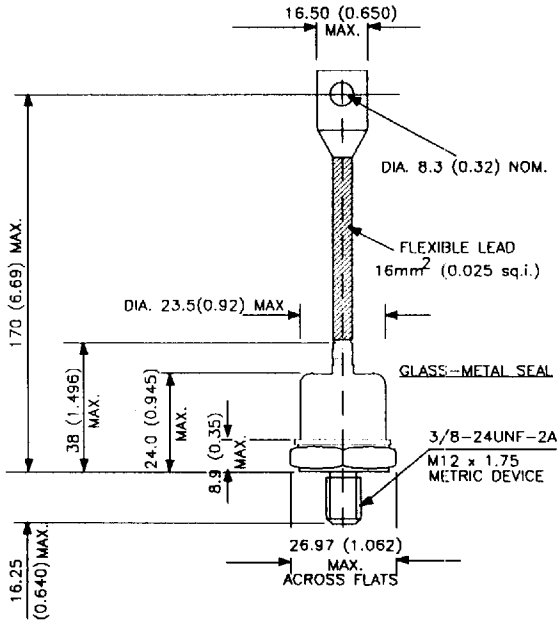
OUTLINE

None = Stud base UNF threads
DO-30 (DO-205AC) 1/2" 20 UNF-2A
M = Stud base metric threads
DO-30 (DO-205AC) M12 x 1.75
W = Stud base UNF threads
DO-8 (DO-205AA) 3/8" 24 UNF-2A
(Contact Factory)
F = Flat base (Contact Factory)
K = Flat square base
(Contact Factory)

OUTLINE TABLE



Conforms to JEDEC DO-205AC (DO-30)



Conforms to JEDEC DO-205AA (DO-8)

All dimensions in millimetres (inches)

Fig. 1 - CURRENT RATINGS CHARACTERISTICS

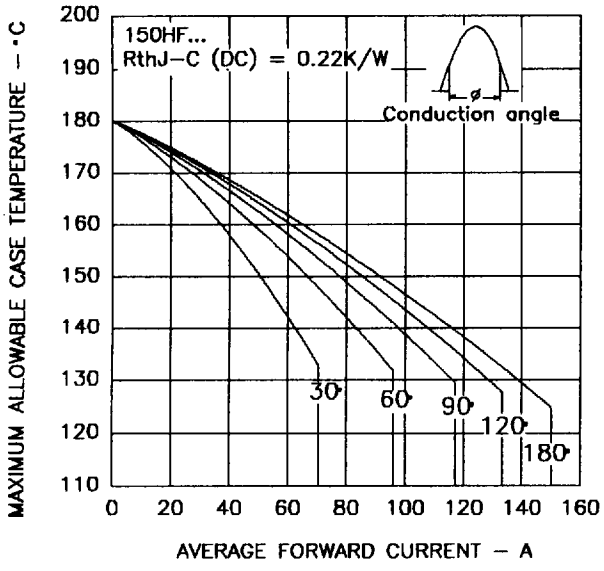


Fig. 2 - CURRENT RATINGS CHARACTERISTICS

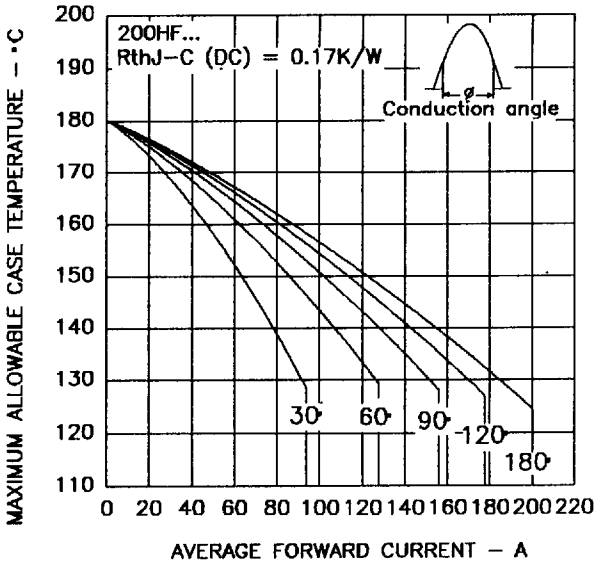


Fig. 3 - CURRENT RATINGS CHARACTERISTICS

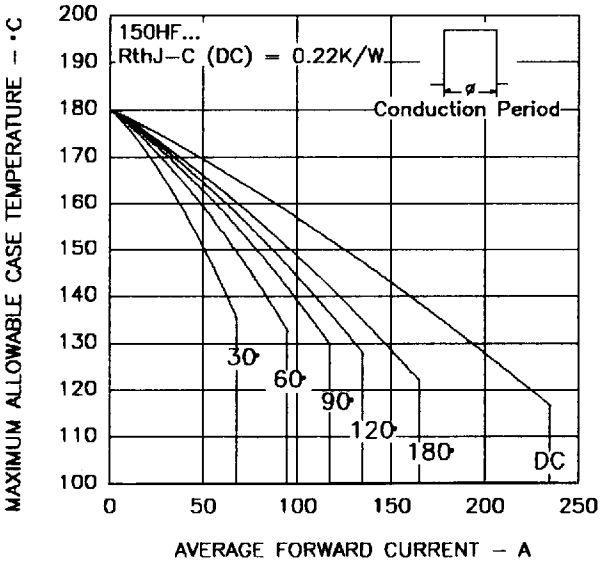


Fig. 4 - CURRENT RATINGS CHARACTERISTICS

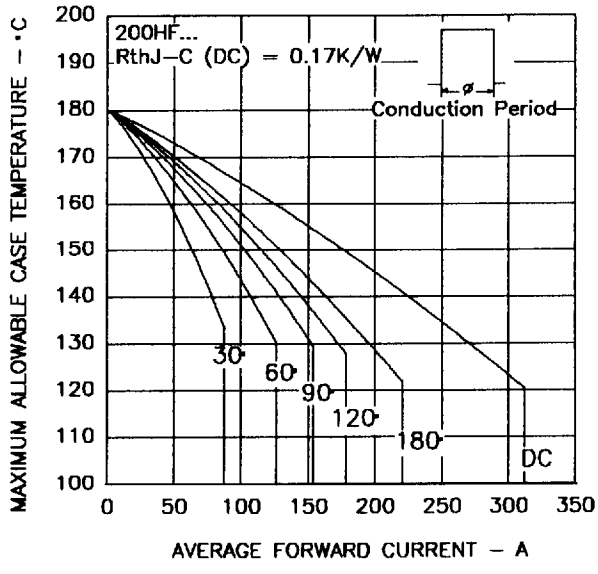


Fig. 5 - FORWARD POWER LOSS CHARACTERISTICS

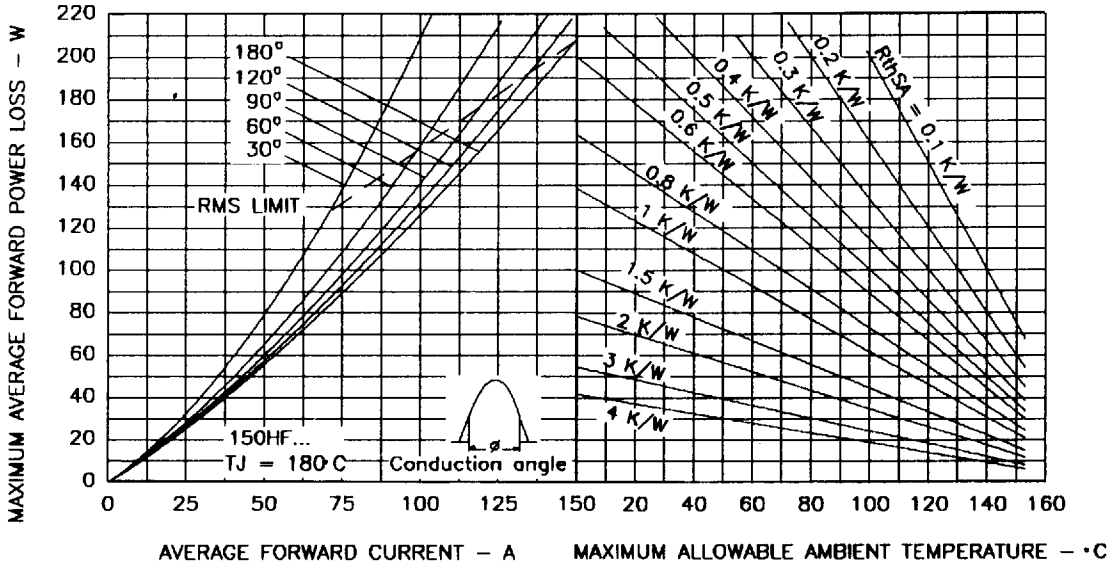


Fig. 6 - FORWARD POWER LOSS CHARACTERISTICS

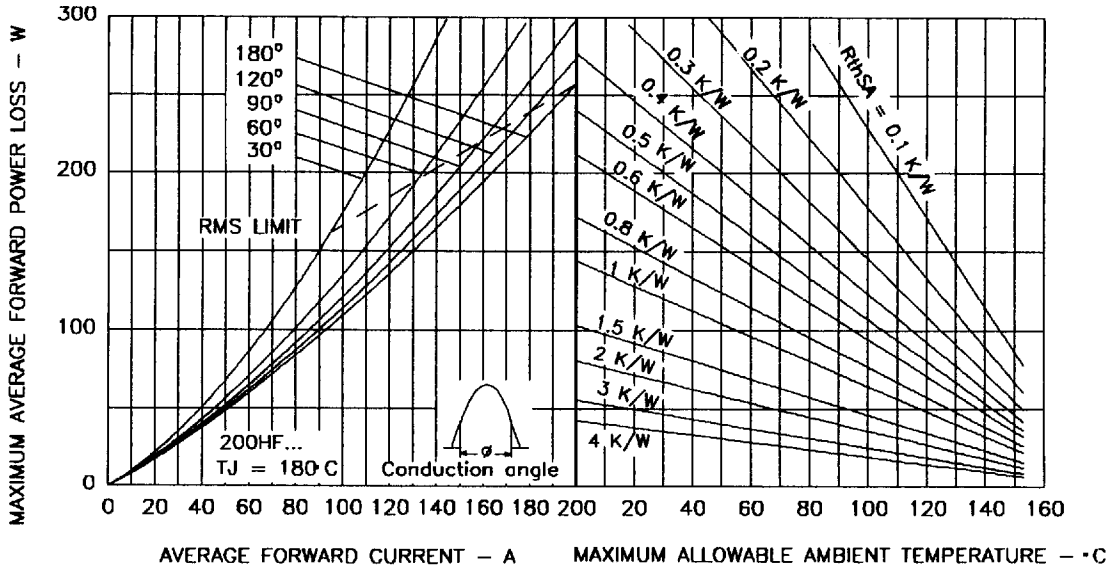


Fig. 7 - FORWARD POWER LOSS CHARACTERISTICS

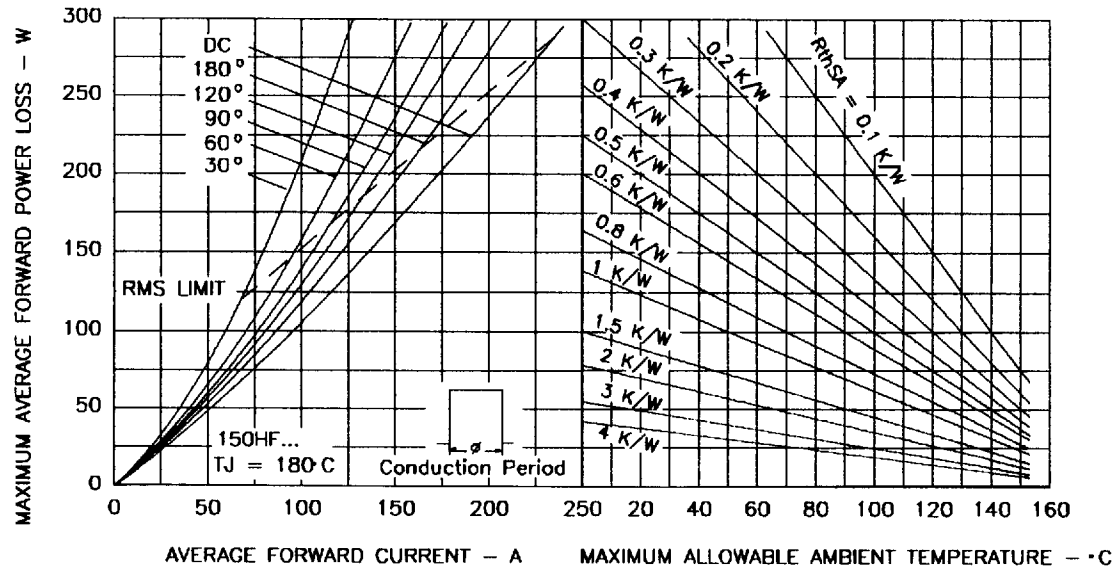


Fig. 8 - FORWARD POWER LOSS CHARACTERISTICS

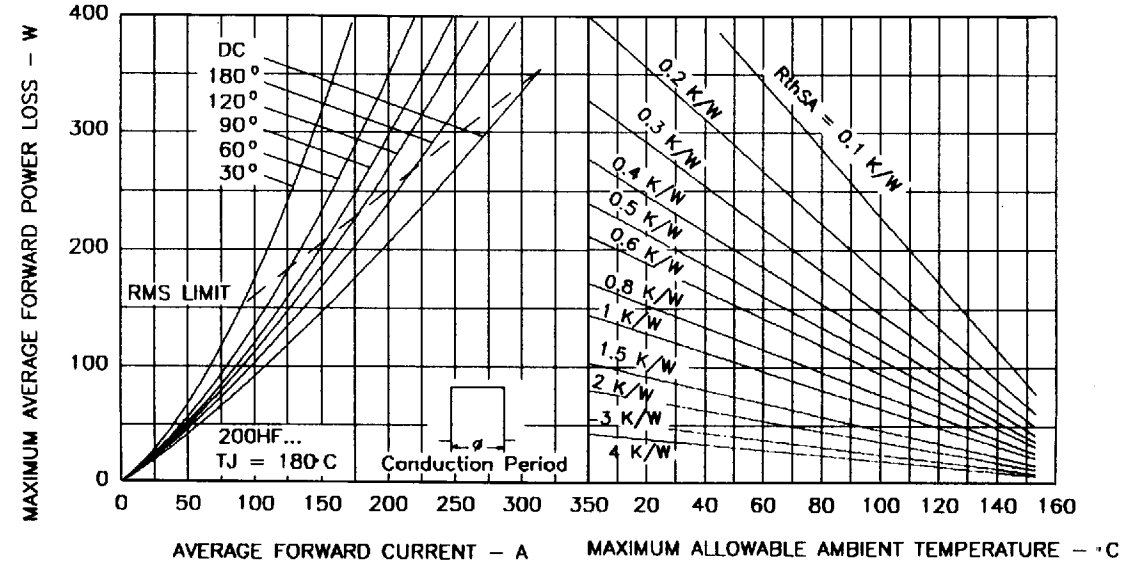


Fig. 9 - MAXIMUM NON-REPETITIVE SURGE CURRENT

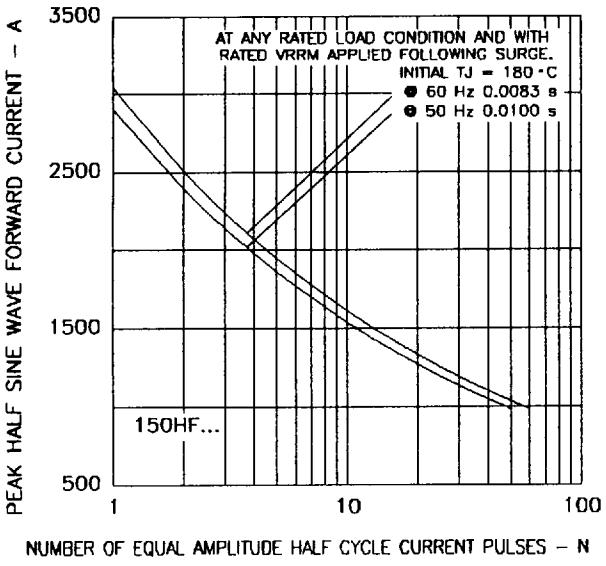


Fig. 10 - MAXIMUM NON-REPETITIVE SURGE CURRENT

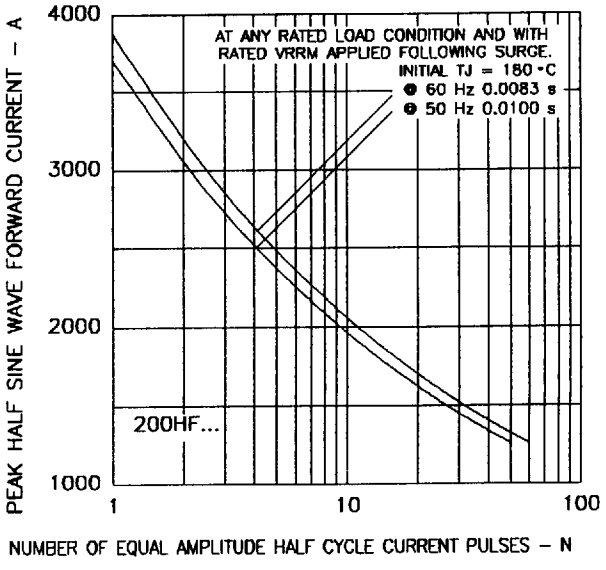


Fig. 11 - MAXIMUM NON-REPETITIVE SURGE CURRENT

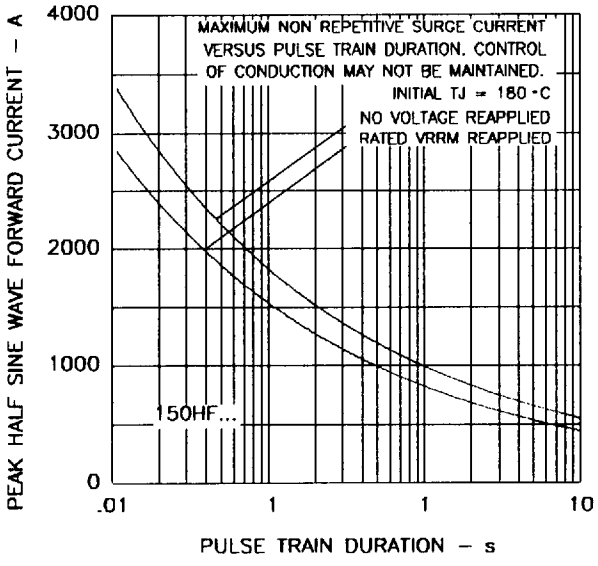


Fig. 12 - MAXIMUM NON-REPETITIVE SURGE CURRENT

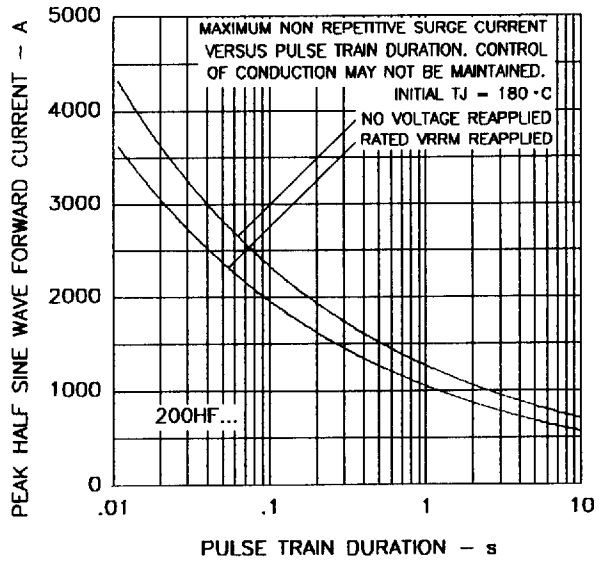


Fig. 13 - FORWARD VOLTAGE DROP CHARACTERISTICS

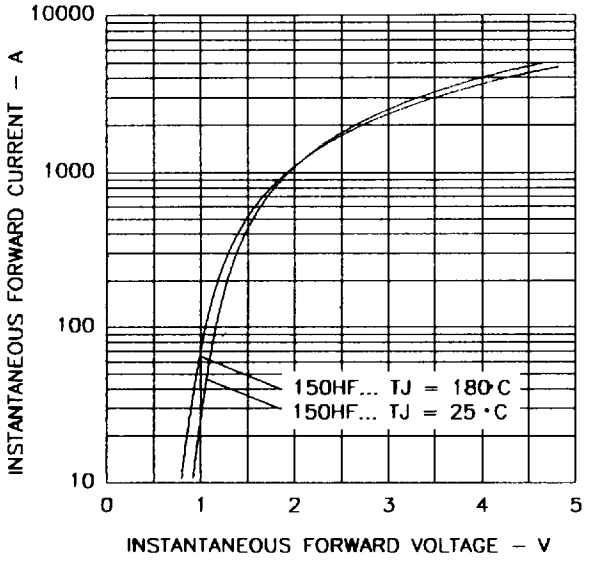


Fig. 14 - FORWARD VOLTAGE DROP CHARACTERISTICS

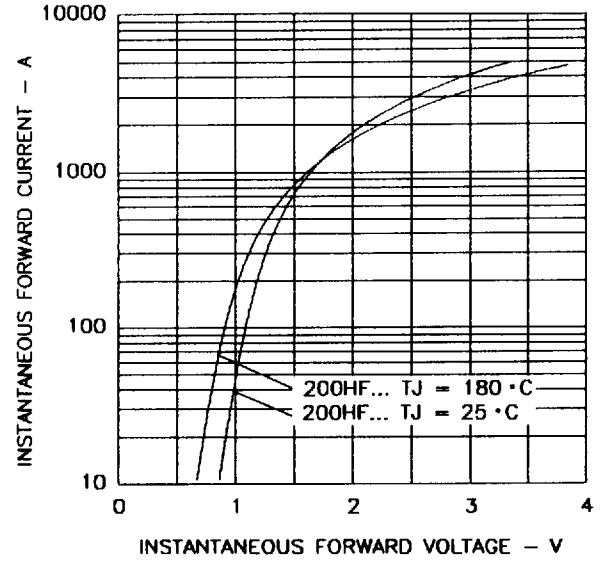


Fig. 15 - THERMAL IMPEDANCE Zthjc CHARACTERISTICS

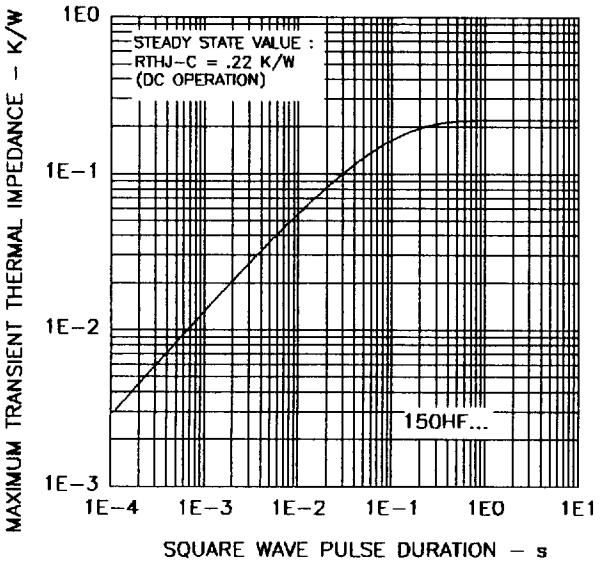


Fig. 16 - THERMAL IMPEDANCE Zthjc CHARACTERISTICS